

*J. Waldburg*

TERMS—Three Dollars per annum, payable in advance.

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# THE SOUTHERN AGRICULTURIST.

(NEW SERIES.)

Vol. IV.

FOR APRIL, 1844.

No. 4.

Communicated for the Southern Agriculturist.

*To His Excellency James H. Hammond,  
Governor of the State of South-Carolina.*

SIR,—When submitting to the General Assembly, through your Excellency, on December 1st, my general report of the Agricultural Survey of the State, up to that time, it was mentioned, that any subsequent observations would be presented in a supplemental paper. But the ill state of my health continuing, as well as other unforeseen causes, (growing out of my official duties,) detained me in Columbia much longer than had been designed, or expected; and these, with the advanced time of winter weather, all concurred to prevent my prosecuting, in my own person, further labors in the field, previous to the end of my term of service, as fixed by my resignation of my office. And the places left for such (designed) closing operations, would have been necessarily neglected, had I depended on my own unaided labors. But having had latterly the services of an assistant, in whose care and accuracy I could implicitly rely, he was sent, with special and particular instructions, to examine the most extensive and important of the omitted localities, as soon as it was certain that I could not perform the duty. The ground left for these last intended observations, and where calcareous deposits were expected to be found, was along Lynch's Creek, the Waccamaw River, and any other places on and near the line of route to the north-eastern border of the State, in which marl might be discovered, or heard of, on the journey. The examinations and observations were made during the month of December; and, from the full notes of my assistant, the following statement of facts is prepared, with some of my own inferences and observations thereupon.

Very respectfully,

EDMUND RUFFIN,

*Late Agricultural Surveyor of South-Carolina.*

Prince George Co., Va., Jan. 12th, 1844.



## SUPPLEMENTAL REPORT OF THE AGRICULTURAL SURVEY FOR 1843

*Secondary and Miocene Marls on and near Lynch's Creek, in Darlington, Sumter, Williamsburgh, and Marion Districts.*

The highest point on Lynch's Creek at which marl was found, is on the land of Mr. Abner G. Williams, in Darlington, about 16 miles (by land) above the old Effingham Mills. Search was made for 8 miles higher, on both sides of the creek, with the aid of diligent inquiries along the road of the residents, without any marl being heard of within that distance. At the locality on Williams' land, the marl was then covered by the creek, which there, and elsewhere below, was reported to be 4 feet above the ordinary height. At the usual height of water, the marl was said to show a foot or two above; and the stratum was supposed to be 10 feet thick, as shown in the bed of the creek. This marl is miocene; and from the specimens obtained, seemed very rich, (for that kind,) and was similar to the blue marl exposed by Col. J. F. Ervin's digging near Darlington C. H., and which was described at page 29 of the report. No analysis of Williams' marl was made, because fair specimens could not be selected at the then height of the water.

Below this place, for 17 miles by land, no other marl exposures were seen, nor heard of, until nearly reaching the land of the Rev. J. M. Timmons, near the old Effingham Mills. But from Timmons' and Ward's Mill, on Sparrow Swamp, (a mile by land above its junction with Lynch's Creek,) both marl and marl-stone are seen, on both sides of the creek, and forming its bed, so far as known, as low as Anderson's bridge, about 25 miles by water. This portion of the creek was examined throughout in a canoe, and therefore was (and the only part) properly and effectually explored. This immense exposure is wholly of the *secondary* formation, and is similar to (and doubtless an extension of) that designated and described before as the "Peedee bed." In some places, miocene is lying on the secondary; agreeing in this connexion, as well as in the appearance and characters of both marls, with the exposures on the Peedee. The secondary marl is of dark color—nearly black when wet, and dark gray when dry—and appears like clay when cut by the hoe. When broken, it presents but few shells, and those mostly of very small size. Its surface varies considerably in elevation. In some places it was several feet above the water, (which,



as above stated, was then 4 feet above the ordinary height,) but more generally was entirely below the surface. The marl is poor, yielding, on an average, about 25 per cent. of carbonate of lime. The intervening layers of marl-stone are at different depths—in some cases being within a foot or two of the top of the stratum, but generally much lower. It yielded 66 per cent. of carbonate of lime. Of the thickness of the whole stratum, of alternating layers of marl and marl-stone together, no accurate estimate could be made. The marl-stone is known to form the bottom of the creek in several places. At Timmons' and Ward's mill, on Sparrow Swamp, the marl (all of the secondary) was seen 4 feet above the water. Thence, passing down, it was frequently visible a foot or two above, but was more generally covered. At Mr. Henry Ham's, Darlington, a mile (by water) above the junction of the swamp and creek, the marl was exposed 5 feet thick above the water. At the old Effingham Mills, (Mr. Benj. Lawrence's land,) and on both the Sumter and Darlington sides of Lynch's Creek, the stratum showed about  $\frac{3}{4}$  foot above the water, and the marl-stone about 2 feet below the top of the stratum. At Mr. Furney Ham's land, in Marion, (5 miles lower, by land,) this marl was seen 6 feet above the water. A mile lower, on Mr. Solomon Coward's land, in Williamsburgh, it was also found, but lying low, as it does all the remainder of the distance examined down the creek, so that but little more of it could then be seen. It is exposed, at low water, in Marion, at Johnson's, the property of Mr. J. M. Timmons, and at Anderson's bridge.

The stratum of miocene marl lying upon the secondary, (as seen along the Peedee river,) was first observed, when descending Lynch's Creek, at the "Sally old Fields," in Marion,  $4\frac{1}{2}$  miles by land below the old Effingham Mills. It is there found about a quarter of a mile from the creek, (low ground intervening,) two feet under the surface of the land. Nothing of its extent could be ascertained, as no digging had been done. A mile and a half lower, at Singletary's bridge, in Marion, it again appears, about 200 yards from the creek, and was there 11 feet above the water. It was again seen at Johnson's, in Marion, about two miles lower. At this place, the high land reaches the creek, and the stratum of marl is seen to more advantage than elsewhere. The perpendicular sec-

tion exposed at and above the water's edge, was 7 feet high. The secondary marl was not visible below, but it is doubtless underlying all this miocene; and further, is reported by the neighbors (according to its description) to be exposed to view here at low water.

This overlying miocene is yellow, dry, very full of shells of the hard gray kinds, but nearly all of the white and softer kinds have disappeared—and agrees, in general, with the description before given of the miocene on the Peedee, of which this is doubtless a part of the same deposit. This, from Lynch's Creek, by the specimens analyzed, contains about an average of 55 per cent of carbonate of lime.

*Secondary and Miocene Marls in Horry, on and near the Waccamaw.*

The lowest point on the Waccamaw river at which marl could be heard of, was at Mr. Buck's saw-mill, 9 miles below Conwayborough. It could not then be seen, being covered by the water of the river. But from its description, it was marl-stone. At Conwayborough, there was no marl visible in the river banks; but wherever a well has been dug, as was reported, the marl was reached at 8 or 10 feet below the surface of the very level and low-lying lands thereabout. No fossils could then be obtained, nor fair specimens of marl for analyzing. But from the descriptions heard, and from a mixed and impure specimen of what had been formerly thrown out in digging a well, it was certain that this is of the secondary formation, and, of course, an extension of the Peedee bed.

Ascending the river, a very thin layer of miocene marl, (yellow and dry,) was first seen at Mr. Grissett's, on the west side of the river, and about 50 yards below the landing. The marl-stone, which immediately underlies the miocene, was inferred to be secondary from its appearance, no fossils being visible. The miocene marl, (known as such by its shells,) was also exposed in a large ditch, running across a field from the river. On Joseph Sessions' land, east side of the river, and  $8\frac{1}{2}$  miles by land above Conwayborough, the miocene marl is abundant. It is so hard, as well as so rich, that it has been burned for lime. At Charles J. Gore's, half a mile higher, and on the same side of the river, there is a high bluff, and the marls of both formations are well exposed. The secondary marl stood 6 feet above the then height of the water; and, lying immediately in contact above, the miocene is 10 feet thick.

The latter is very rich, and of beautiful appearance. The highest point on the Waccamaw at which marl was reported to have been seen, was at Joseph Dewitts, 12 miles by land above Conwayborough; which was not visited, but from the description heard, is certainly the miocene.

From all these observations, it may be generally and safely inferred that the bed of miocene marl, as seen near Darlington Court-House, extends across Lynch's Creek, forming the highest known exposure thereon. And that the Peedee bed, or secondary marl, extends across Lynch's Creek in one direction from the Peedee, and, in another, across the Waccamaw—overlaid occasionally with the like patches of yellow miocene marl, of peculiar appearance and character, as seen on the Peedee, and as was fully described at page 27 of the report. The secondary marl and marl-stone on the Waccamaw seemed precisely like what had been seen, and more particularly examined, along Lynch's Creek.

*Post Pliocene Marl of Horry.*

On the south bank of Price's creek, which flows into the ocean, there is an extensive bed of the richest known *post-pliocene* marl; or, rather, of the shells and their fragments, almost free from any admixture of other matters. The formation may be seen in the main road from Georgetown northward, where it passes through the bed, just before crossing the creek; and it also shows abundantly half a mile lower. In some places the stratum is 7 feet above the water—and how much below the water, could not then be ascertained. There is a small cleared field (of 6 or 8 acres) on the side of the creek, through the whole extent of which this marl was evidently within a few inches of the surface of the soil. It showed on the surface in the ant-hills, formed by the earth brought up by the labors of those insects in excavating their cells. In one place, the marl cropped out of the surface of the ground; and in others, the rooting of hogs was sufficient to lay it bare. The shells are such as were stated to be found in the post-pliocene marl near Charleston. They sometimes form solid and compact concretions; but are more generally separate and loose. But, in either case, they constitute almost the whole mass, being merely tinged slightly yellowish, as if ferruginous matter, or water muddy with yellow clay. This great body offers a most valuable supply of manure,



either as marl, in the loose fragments, or in the soft but concrete rock, for burning to lime.

*Marls in adjacent parts of North-Carolina.*

Though in all this route of observation no marl of the "Great Carolinian Bed" was found, there is plenty, and of the richest and best quality, more northward. And though this, so far as yet known, is beyond the border line of South-Carolina, it may be interesting, and not a useless addition to the survey of the calcareous formations of the State, to present, in connexion, some of the facts which happened to be observed in the neighboring territory. Of course, the duty to search, and examine strictly, no longer existed; and, in North-Carolina, nothing was sought for much out of the line of travel homeward, or received examination that would have required much delay. Thus, nothing was observed between the South-Carolina line and Wilmington. About 13 miles above Wilmington, on the N. E. Cape Fear river, at a place called Mar's Bluff, there was seen a fine exposure of rich and beautiful marl of the Great Carolinian Bed. It was readily identified by finding therein, in plenty, (besides many other shells in fragments,) perfect specimens of the *Scutella Lyelli*, a characteristic fossil, found, though rarely, in some parts of this formation in South-Carolina. This exposure on the Cape Fear river is about 100 yards in length, and about 8 feet above the water, which was then high. The marl is in parts white, and in others yellow. It is a moderately soft concretion of broken or disintegrated shells.

Near South Washington, and about 34 miles from Wilmington, two exposures of the secondary marl were seen. No doubt of its character could exist, as the characteristic fossils, *Belemnites* and *Exogyra Costata*, were found therein. The two exposures referred to are on the lands of F. Register and D. Harrell. In both cases, the marl was traced along the depressions made by the passage of small streams. At Mr. Harrell's, the marl was about 6 feet above the stream. At the top is a layer of marl-stone, about a foot thick. Under this is the soft marl, which appears to be poorer as it is lower in the bed. In the upper 2 or 3 feet of the soft marl were found very large and thick shells of a singular oyster, (or possibly of a *gryphaea*?) not seen previously elsewhere, or known to the reporter. These remarkable shells are still more numerous in

Mr. Register's marl. This same kind of marl, (as was inferred from the description,) is reported to be sometimes found under the savanna lands, in digging wells, and within 6 feet of the surface.

Though not included in these recent and more particular examinations, it was before known, from former personal observations by the writer, that miocene marl is also found not far northward along the line of the rail-road. And also, other fine exposures of rich marl of the Great Carolinian Bed had been observed, (in the year 1838,) near to that above described at Mar's Bluff, both at Rocky Point, on the river, and at Ashemoore, the plantation of Dr. J. F. M'Ree, 15 miles above Wilmington. And thus, from all the observations made, it appears that within regions of but small extent, and both in North and South-Carolina, there are to be seen exposures of all the four formations of marl treated of in the general report; and of which, any two, and sometimes three, of the kinds, occur frequently very near together, even though separate and distinct, or not, apparently, one of them lying upon another.

*Contents of Carbonate of Lime of some of the Marls of Lynch's Creek, and its tributaries, referred to above.*

181	Secondary Marl—from Timmons' and Ward's mill,		
		Sparrow Swamp, at top,	per cent. 18 $\frac{3}{4}$
182	do.	same, 3 feet deep,	21
183	do.	do. 6 feet deep,	25 $\frac{1}{2}$
184	do.	do. marl-stone,	66
185	do.	Henry Hams, Sparrow Swamp, 5 feet deep,	25
186	do.	B. Lawrence's, Lynch's Creek, top,	15
187	do.	Furney Ham's, do. 6 feet deep,	27 $\frac{1}{2}$
188	do.	S. Coward's, do. 3 feet deep,	27 $\frac{1}{2}$
189	Miocene Marl—J. W. Singletary's,		
190	do.	J. M. Timmons', No. 1,	54 $\frac{1}{2}$
191	do.	do. No. 2,	50
192	do.	do. No. 3,	48

YANKEE MANUFACTURERS IN MEXICO.

In the District or State of Durango, Mexico, there are 31 cotton factories. They were got up principally by emigrants from Massachusetts and Rhode Island, at the head of which is Philip Tillinghast, of Providence, R. I. The factories are operated by native Mexicans.

[*New-York Farmer and Mechanic.*

Communicated for the Southern Agriculturist.

ON THE COTTON GIN, AND INTRODUCTION OF COTTON.

*Answers to queries of the Hon. W. B. Seabrook of Edisto, S. C.  
by Thos. Spalding, Esq. of Sapelo, Geo.*

Sapelo Island, Nov. 9th 1843.

*Dear Sir,*—Your letter of the 3d of Nov. is before me.

1st. The treadle-gin was introduced into Georgia, to the best of my remembrance, in the winter of 1788, by Alexander Bisset, at St. Simons Island; I think he took the idea from communications, from the Bahama Islands, he was an ingenious man himself, and his overseer, a mechanic; why I remember this, is, because my father was his Executor, and this overseer became mine, for the first twenty years of my being a planter.

2d. The Sea-Island cotton now grown in Carolina and Georgia, was introduced into Georgia from the Bahamas. The seed was sent by the board of trade, (to the Bahamas,) at the head of which, was Charles Jenkinson, the first Earl of Liverpool, who having been a great instrument in keeping up the revolutionary war, was certainly, a warm friend of the unhappy men, who suffered by it.

The seed was procured from a small Island, called Anguilla, situated near, and an appendage of St. Domingo, then producing the best West India cotton. Why I speak thus positively is, that Louis Johnstone, and Alexander Wyly, were successively, the speakers of the colonial assembly of the Bahamas; they were natives of Georgia, and when the caterpillars, and bad seasons, drove them from the Bahamas, removed into my immediate neighborhood. They were privy to all that passed, as to the introduction, of cotton into the Bahamas, from their position in the colonial assembly; they had read the correspondence between the board of trade and their own Governor, Lord Dunmore, of Virginian memory.

3d. The short staple cotton now grown, was cultivated in small patches, for domestic use, from Virginia to Georgia, very many years before the Revolution; Col. Delegal who had joined Genl. Oglethorpe as Lieut. Delegal, from Carolina, had 30 acres growing on Green Island, 12 miles south east from Savannah, in 1776, when the revolution commenced.

5th. The two kinds of cotton I spoke of, were the common green seed, and a cotton, in growth resembling it, but whose seed was



clean and black, except carrying a tuft at the end, with large round bolls; to my surprise, within a few years past, we see a great mixture of white blossomed cotton, much resembling it. It is my opinion that the first Louisiana cotton, was derived from this species, but crossed as it descended towards the sea by other seed; the Louisiana cotton of that period, was an abundant bearer, but the wool short, and very tender. I remember a good deal of Sea-Island cotton seed—being shipped from Savannah to New Orleans, soon after the session of that country to the United States.

5th. In one of my letters for the Southern Agriculturist, I ventured to suppose, that cotton seed had been introduced at an early period into Maryland or Virginia from Smyrna, because the Turkish trade was then the most important trade that England had, and Smyrna the seat of that trade; that some of the Govenors of these two colonies were enlightened men, that they naturally sought for objects of culture, in latitudes agreeing with the latitudes of these colonies, as Oglethroe looked to silk and wine, as the future produce of Georgia. Some two or three years since, some person in Philadelphia, pretended to have discovered a Virginia newspaper, giving an account of the introduction of cotton seed from Smyrna; cotton had been growing in Virginia many years before a newspaper had been published there. Franklin in his life, gives an account of American newspapers, as a thing of modern times. Some years since, a Mr. Welch, a respectable merchant of Philadelphia, wrote Mr. Couper that he had been the cause of introducing Sea-Island cotton into Georgia, because he had sent from Havana to Mr. Levett, some Pernambuco (Brazil) cotton seed. About the year 1794 or 1795, thousands of bales of Sea-Island cotton had been shipped from both Carolina and Georgia, before Mr. Welch sent his seed to Mr. Levett, who lived in my neighborhood, and very generally distributed this seed for trial; it was the kidney-seeded cotton, with a good staple, bearing well, and ginned with the least possible trouble, but being inferior to our own, was abandoned, to my now regret, as the climate and soil would have improved its quality, as the climate and soil has improved the quality of the Anguilla seed. This letter of Mr. Welch was published by Mr. Legare, and I then replied to it.

6th. I have no idea, that any of the cottons are of American origin, except the cotton that is grown upon trees in Peru, and

generally in Central America, and which served to clothe in white, the Incas and Priests of the Sun, in Peru and Mexico, and else where. There is little difficulty in tracing tobacco, Indian corn, both varieties of the potato, the bison, the lama, and the wild turkey, to their first home in America, and I think, there is a little doubt that America owes to the East, her coffee, her sugar, her cotton, and her indigo, her horse, her ox, the hog, the fowl of our yards, and the bee that gives us honey. Yet what is a little surprising, the best indigo that is produced, is from Gauatimala, in Central America, and the best cotton, from our own Southern States. The monsoons that blow over all of Southern Asia, so injures the product of cotton, and indigo too, that they can never rival us, when we shall pursue the cultivation of the one or the other. Cotton put down the growth of indigo in the Southern States; high bounties of the British Government, assisted by the knowledge of a Mr. Gray, once the overseer, of Mr. John Bowman of Charleston, who carried the American mode of manufacturing to Bengal, extended its growth in India. We must now resume it; there is but one cutting of indigo in the East, the dry, or the wet mousoon ends it, after the first cutting. In Carolina there always was two, and with more care in the purifying the water in which we shall steep the indigo, the quality will improve.

7th. An accidental circumstance enables us, as I think, to trace our Sea-Island cotton to its original growth. A respectable merchant of Charleston, Mr. James Hamilton, was connected with Mr. Couper of St. Simons in growing cotton. There was at that period, a single India ship, trading from Charleston, beyond the Cape of Good Hope, in which Mr. Hamilton held a property. By her he procured a variety of cotton-seed with the cotton attached, among them, seed from the Island of Bourbon. Bourbon cotton, was even then of higher value, in the English market, than any grown in Georgia. Mr. Couper planted this seed in his garden, but not a pod perfected itself. About the same time, a Mr. Piles, a small planter at St. Simons, near the sea, in new and warm land, had about 25 acres of cotton, that simply shed its leaf in the winter; the plants were in the spring, sound to the very upper bud. Mr. Couper and myself persuaded Mr. Piles to let this cotton grow as it stood. The next year it put out very fully, gave a great many pods, but these

were not much above half the size of the seed cotton, on the ratoon cotton, where the stalks had been cut down. But the cotton, both in its staple and in its seed, was precisely like the Bourbon cotton, sent by Mr. Hamilton to Mr. Couper. I trace our cotton then, first to Anguilla, in the West Indies, and from thence, to the Isle of Bourbon in the Indian Ocean. And I have as little doubt that the short staple cotton, came from Asia-Minor. The first notice of cotton, the books give us, is Arrian; in the expedition of Alexander to the East, states, that Nearchus, in descending the Indus with his fleet, found wool growing upon shrubs, to the surprise of Greeks and Macedonians; he goes on too, to describe the mode of separating the seed from the wool, by wooden rollers worked with the foot. Now as the Macedonians, to reach the Indies, had traversed Syria, and Egypt, and Persia, we may well suppose, cotton was grown at that time, in none of these countries, that in all human probability, the successors of Alexander, to whom fell his Persian, Syrian, and Indian Empire, that is as far as the Indus, introduced cotton into Persia, from whence it would pass into their tributary provinces, on the Mediterranean.

8th. Two varieties of cotton are grown in Malta, the yellow (nankin cotton) and white, as we had at an early period, the nankin cotton which grew well, and bore most abundantly, but being a fuzzy seed we could not gin with our rollers. I think it is probable that it was this yellow cotton that came from Malta. You may see in Dr. Brydon's tour to Sicily and Malta, about the year 1760 a silly story, that he was told in Malta, about the mode of preserving some of their cotton white, for particular purposes.

9th. The first of Whitney's gins I ever heard of, was about 1794, at Mulberry Grove, the plantation of Genl. Greene, on the Savannah river. Mr. Whitney was a graduate of Yale College, and a fellow student of Mr. Phineas Miller, who had married Mrs. Genl. Greene; they were both men of genius; it was there Mr. Whitney, assisted by his friend, executed his first gin, and there worked it. This gin was made with strong wires, in all other points, substantially made and neatly executed. South-Carolina and North-Carolina bought out the right of Miller and Whitney, for their states, Georgia refused to do so—and persons at Augusta, begun the manufactory, but substituted the steel plate that is now used, for the wires. I have



generally in Central America, and which served to clothe in white, the Incas and Priests of the Sun, in Peru and Mexico, and else where. There is little difficulty in tracing tobacco, Indian corn, both varieties of the potato, the bison, the lama, and the wild turkey, to their first home in America, and I think, there is a little doubt that America owes to the East, her coffee, her sugar, her cotton, and her indigo, her horse, her ox, the hog, the fowl of our yards, and the bee that gives us honey. Yet what is a little surprising, the best indigo that is produced, is from Gauatimala, in Central America, and the best cotton, from our own Southern States. The monsoons that blow over all of Southern Asia, so injures the product of cotton, and indigo too, that they can never rival us, when we shall pursue the cultivation of the one or the other. Cotton put down the growth of indigo in the Southern States; high bounties of the British Government, assisted by the knowledge of a Mr. Gray, once the overseer, of Mr. John Bowman of Charleston, who carried the American mode of manufacturing to Bengal, extended its growth in India. We must now resume it; there is but one cutting of indigo in the East, the dry, or the wet mousoon ends it, after the first cutting. In Carolina there always was two, and with more care in the purifying the water in which we shall steep the indigo, the quality will improve.

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were not much above half the size of the seed cotton, on the ratoon cotton, where the stalks had been cut down. But the cotton, both in its staple and in its seed, was precisely like the Bourbon cotton, sent by Mr. Hamilton to Mr. Couper. I trace our cotton then, first to Anguilla, in the West Indies, and from thence, to the Isle of Bourbon in the Indian Ocean. And I have as little doubt that the short staple cotton, came from Asia-Minor. The first notice of cotton, the books give us, is Arrian; in the expedition of Alexander to the East, states, that Nearchus, in descending the Indus with his fleet, found wool growing upon shrubs, to the surprise of Greeks and Macedonians; he goes on too, to describe the mode of separating the seed from the wool, by wooden rollers worked with the foot. Now as the Macedonians, to reach the Indies, had traversed Syria, and Egypt, and Persia, we may well suppose, cotton was grown at that time, in none of these countries, that in all human probability, the successors of Alexander, to whom fell his Persian, Syrian, and Indian Empire, that is as far as the Indus, introduced cotton into Persia, from whence it would pass into their tributary provinces, on the Mediterranean.

8th. Two varieties of cotton are grown in Malta, the yellow (nankin cotton) and white, as we had at an early period, the nankin cotton which grew well, and bore most abundantly, but being a fuzzy seed we could not gin with our rollers. I think it is probable that it was this yellow cotton that came from Malta. You may see in Dr. Brydon's tour to Sicily and Malta, about the year 1760 a silly story, that he was told in Malta, about the mode of preserving some of their cotton white, for particular purposes.

9th. The first of Whitney's gins I ever heard of, was about 1794, at Mulberry Grove, the plantation of Genl. Greene, on the Savannah river. Mr. Whitney was a graduate of Yale College, and a fellow student of Mr. Phineas Miller, who had married Mrs. Genl. Greene; they were both men of genius; it was there Mr. Whitney, assisted by his friend, executed his first gin, and there worked it. This gin was made with strong wires, in all other points, substantially made and neatly executed. South-Carolina and North-Carolina bought out the right of Miller and Whitney, for their states, Georgia refused to do so—and persons at Augusta, begun the manufactory, but substituted the steel plate that is now used, for the wires. I have

no doubt, that Whitney, had taken the idea of this gin, from the circular cards, then of modern use, and which New-England I believe claims the credit of. The manner of taking off the wool from the cards, and from the gin, being the same, confirms me in this opinion. I was then a very young man, but you must not suspect me of being one of those that denied the claim of Miller and Whitney; the reverse was the case, for I then, and now consider, that the improvement of a known machine, and its application to a new purpose, gives a right of public protection, to the party making the improvement.

Miller and Whitney were wrong, in wishing to secure the exclusive right to use their machine, which would have denied to the public any benefit from the invention. The exclusive right, to make and vend, was declared by the court to be the law, and is, as I believe, the law of all countries upon this subject.

I have answered your inquires in a more hurried manner, than I would have desired, had better health and better opportunity been afforded me.

I remain, dear sir,

Respectfully, your ob't, serv't.

THOMAS SPALDING.

To W. B. SEABROOK, Esq.

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#### CATTLE DISEASES AND FOUL PASTURES.

(Continued from page 93.)

We might go on to describe the injurious properties of other poisonous weeds, such as the dandelion, ox-eye, daisy, sorrel, hawk-weed, thistle, mullein, &c. &c., but it is not necessary to the elucidation of our subject; we have enumerated the four most common, and whose poisonous qualities are of the most acrid description, and we would now ask our readers if they think it a matter for any surprise, that cattle, constantly feeding on pastures full of these weeds, possessing qualities so detrimental to health as we have described, should contract disorders which have baffled the skill of the whole Veterinary College of Great Britain.

That there may be other causes affecting the blood and constitution of stock, tending to a superinduction of disease, we will not deny. But we must at the same time confess, that we are prepared to admit, with Dr. Whitlaw, "that the injurious effects of the various oils that enter into the composition of half the plants which cover



our rich pasture lands," are fully sufficient to account for the widely extending disorders and contagious diseases at present prevailing amongst the stock throughout our country.

We were greatly surprised, not long ago, at being informed, by those well able to judge, that more than half the bullocks and sheep that are slaughtered in New-York, are unsound or otherwise diseased, and daily observation, we regret, to add, but too convincingly attests to the truth of the assertion.

The evil, we had almost said awful, consequences of this state of things are truly alarming. For, as the poisonous oil of vegetables that is eaten by animals, enters into and forms part of their system, thus necessarily diseasing the fat, and butter, and milk, it follows that we are daily partaking, in our aliment, of those injurious and destructive properties described as belonging to the *Ranunculus*, the *Poppy*, the *Cicuta Virosa*, and the *Euphorbia*, &c. &c.

We might here proceed to show the connection which exists, as we believe, between many of the diseases to which the human frame is subject, and those which we contend are conveyed to cattle and sheep by feeding on foul pastures; but we feel that it does not come within the province of the present article to do so; moreover we might be considered as trespassing on topics more legitimately belonging to the consideration of that profession whose business it is to make a study of human diseases and their causes. Indeed we should not have alluded to this branch of the subject at all, but we were anxious to place the matter before our agricultural friends in as forcible a light as possible—and to show them that, by slovenly farming, they not only injure themselves, but may possibly be the cause, indirectly, of many widely spreading and devastating evils.

But to return: We have no doubt that some of our readers will be sceptical of the fact that so much injury is produced from the causes that we have assigned, and will be inclined to fall back to the opinion of Curtis, "*that cattle seldom eat these poisonous plants.*" But what will be said when, upon investigation, it be found that in the spring months of the year, in many of our pastures, the cattle cannot place their mouths upon any spot of grass without coming in contact with some of them, especially the butter-cup, and thus are they compelled to eat them.

Others may say, why do they not kill the animals? we have no hesitation in saying that they do—and especially young stock, in the spring, from sucking the milk, through which the poisons pass off from the cow or the ewe. A great deal of stock is said to die of *inflammation*, *influenza*, &c., which no doubt is true, but we believe that, if the exciting cause of those complaints was traced to its right source, it would be found to exist in deleterious food. If it were not so, how is it that stock in newly settled districts is invariably to be found more healthy than in our lands that have been long cultivated? And how is it that those persons who

subsist principally on the flesh of the buffalo and the wild deer, seldom complain of any malady, till overtaken by old age? for it must be borne in mind that few of the poisonous plants alluded to, are indigenous to our soil. They have nearly all, at some time or other, been imported and *sown*.

Again, we may be asked, if your position is a correct one, how is it that stock does not suffer every season alike? To this we answer, that poisonous plants, generally, are juicy, and that wet seasons render them both more abundant and active, as may be proved from the circumstance that the prevalence of warm weather causes their destructive properties to evaporate, and, to a certain extent, parches them. For instance—when cut with the grass in warm weather, the roots of the plants suffer from the heat, and do not spring up in such abundance in the fall; on the contrary, if rain follows immediately after cutting, the roots do not suffer, but throw out vigorous foliage in abundance, which will continue in full vigor during a great part of the winter. From this circumstance, the effects of disease are particularly visible in live stock in wet seasons.

"But," observes Dr. Whitlaw, "were the fields properly fallowed, and cleared of every description of poisonous plants, and sown with clover and the best grasses, wet seasons would not disease the stock." We cannot go quite so far with the Doctor, but we believe that the stock would not be so liable to contract disease, for we think that continued wet is of itself sufficient to affect the health of domesticated animals.

We think we have said enough to awaken the attention of farmers to the importance of paying attention to the state of their pastures. We feel, however, loth to leave the subject without pointing out some of the means by which, in some cases, the evil may be eradicated, and in others prevented. The first and most effectual plan is to employ a number of hands; children will answer the purpose, to root out the poisonous plants from the soil and burn them, spreading the ashes again over the field. Where this plan is pursued, some seed of the clover and other wholesome grasses should be previously sown, which, being trodden on by the weeders' feet, will readily grow.

Doctor Whitlaw, in his work on "Poisonous Plants," tells us that a friend of his treated two fields in the manner we have suggested, and the consequence was that his crops of grass and pasture were more than doubled, and the butter produced from them commanded, by their superior quality, the highest price in the market.

But in this country, where manual labor is expensive and difficult to obtain, the above mode of proceeding, although quickest and most effectual, could not, for the above reason, be generally adopted.

The second plan that we would suggest is, that certain portions of the pastures, in which these weeds are found most to abound,

should be annually ploughed up and undergo a regular system of cropping and fallowing, previous to being again laid down. This mode of proceeding would come within the means of the humblest tiller of the soil, and tend, by exposing the roots of the plants to the action of the atmosphere, to destroy them. Or a still better plan may be to turn over the sward in August or September, in a most workmanlike manner, and seed down immediately.

Thirdly; As most of the worst species of poisonous plants grow with the greatest vigor in wet and moist soils, the system of thorough under-draining and sub-soil ploughing should be introduced and acted upon generally. "It is the basis of good husbandry."

Fourthly: Great care should be taken in selecting grasses for sowing; it is very common to look to the hay-loft for a supply of seeds; such a practice cannot be too highly deprecated. Such a source, in the present state of many of our pastures, is little better than a huge Pandora box.

Fifthly: The seeds of many of the plants to which we have alluded, are brought in to the farm-yard with the hay and clover, pass through the stock without the vegetating powers being at all injured—are mixed with the manure, and again carried out and spread on the fields to grow and multiply. To prevent this, lime and salt should be mixed with the manure, thus forming a compost, which should be formed some months previous to use, and turned over two or three times; by this means all the insects, seeds and roots in the manure will be destroyed.

With regard to the ploughing up of old pastures, which we have recommended, some may be led to doubt its propriety. We are induced, therefore, to strengthen our opinion by quoting the remarks of Walter Blyth on the subject, an eminent agriculturist in the time of Oliver Cromwell—which will also serve to show that we are advancing no "new fangled ideas."

He observes, in alluding to the great benefits arising from new laid down pastures, "I say, then, in the ordinary course of nature, God's blessing accompanying it, it shall increase and improve for many years, and continue until some of the former and aforesaid corruptions predominate again; of which myself hath had large experiences, and can produce many precedents: and do you but look into and upon much of your new laid-down land to graze, which being continually grazed, doth put more proof into all sorts of goods, breed better, feed faster, milketh fruitfuller than old pasture, that is richer for ten, fifteen, or twenty years together. I have brought the purest mutton out of land, the third, the fourth, or fifth year after ploughing, being about eighteen or twenty shillings per acre more than any lands in those parts or near thirty shillings an acre hath afforded: and in reason it must needs be so, because what grass comes first is pure, without mixture, and sweet, being young and tender, and having no corrupt weeds or filth to annoy it; and fruitful, having heat and strength left in the land to

feed it; and for continuance fear it not, if grazed, for the very grazing will enrich it every year, and improve it until it grow so old again, and overrun with moss, ant-hills and rushes, or other corruptions, that it requires ploughing, and then let it have it, for the land's and thy advantage sake."

That foul pastures are the cause of much disease, contagious disorders, and deaths amongst the live stock on our farms, and through them affecting, to a lamentable extent, the health of the human family, is, to say the least of it, subject which merits the speedy and strict inquiries of all interested in agriculture and the welfare of his fellow creatures. If, upon examination, the supposition is found to be illfounded, well and good. But on the contrary, if, as we imagine, the supposition is correct, we ask our farmers, with whom the power rests, to exert themselves to check and eradicate the destructive cause.

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EXTRACTS FROM RUFFIN'S AGRICULTURAL SURVEY OF  
SOUTH-CAROLINA.

*General Characters, Extent and Distribution of the Calcareous Formations of lower South-Carolina.*

The term *marl*, when properly restricted in its application, would designate a calcareous clay, compact and firm, as well as smooth and soapy to the touch, and usually homogeneous in texture and general appearance. But if insisting to thus limit its application, it would be necessary to banish the term altogether from the ordinary nomenclature of this country. For, there is so little of this kind marl found, that it has not yet been used alone as manure, nor is it known to be available for use. Therefore, notwithstanding all the proper and strong objections to new and popular and incorrect applications of this term, it is necessary to yield to them in part, as I have heretofore done, and shall now in this report. The name marl, then, will be here given to any compound or mixture of earths of which *carbonate of lime* in any form constitutes either the sole or chief value as manure, and is in such large proportion as to be an important value—and of which compound the mass is soft enough to be excavated and broken down by ordinary digging utensils. This definition is sufficiently plain and precise; and it includes the true marl as found in Europe, the deposits of the generally loose fossil shells in earth and the looser shelly sands of lower Virginia, and also the compact and rich calcareous beds of lower South Carolina; while it excludes all the soapy non-calcareous clays of England, which have been so often applied in practice, and referred to by writers, as marl, and also the extensive and valuable though non-calcareous *green-sand* beds of New Jersey,



which have more recently, and as incorrectly, been called marl, not only by unlettered cultivators, but also in scientific publications. When considerable portions of a calcareous bed, or any separate layer or mass is not earthy in texture, but assumes a stony hardness, and is not capable of being dug, or pulverized enough for manure by ordinary implements, and requires for such use to be burnt to lime, then such calcareous rock will not be termed *marl*, but *marl-stone*.\*

The marl region of South-Carolina is of great extent, even if it were limited by my actual observations already made of easily accessible localities, and by inevitable deductions from these observations. But it can scarcely be questioned that the principal formation is continuous, and also of immense thickness, and that this one bed alone underlies much the larger portion of all the country below the falls of the rivers; though it may not be accessible for profitable and practical use through the larger part of its wide extent.

The marls of South-Carolina which are sufficiently abundant to be valuable for use, are of four different formations, or geological ages, and each of distinct and marked character in regard to certain minor peculiarities, though all agreeing in the main chemical and agricultural characteristics, as defined above, and which only are of importance to the value of marl.     \*     \*     \*     \*

These marls will be first designated generally, in the order of their age, or original formation, and afterwards described separately and particularly.

1st. That which I shall term the *Peedee bed* is the oldest marl, and is part of the great secondary formation, (and that division called the cretaceous, and which is so fully developed in New-Jersey,) as is manifest from its characteristic fossils, (principally *belemnites Americana* and *exogyra costata*.) This bed, so far as I have yet ascertained, is limited to the land bordering on part of the great *Peedee* River and some of its tributaries, as Black River; all the formation being connected and lying in Marion, Williamsburg and Georgetown Districts.

2d. The next oldest formation of marl is that which I shall designate as the *Great Carolinian bed*. It extends from east of the Santee to far across the Savannah. Its western limit is a line not far varying from parallel to, and from 25 to 35 miles below the falls of the rivers; and eastwardly it stretches to and beneath the ocean.

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\* Thus the term *lime-stone* is withheld from both marl and marl-stone, to which it has been so generally applied, and by scientific writers as well as in vulgar language. It is proper to confine the term lime-stone to the peculiar compact-stone, well known as such in mineralogy and the arts. If we depart from this particular meaning, and deem every thing lime-stone that is stoney, and composed principally or entirely of carbonate of lime, then chalk, and masses of coral or madrepor, of travertin, of stalactites, all must be considered as lime-stone, and the term, by such extension, would lose all precision and value.

*General Character, Position and Extent of the Great Carolinian bed of Marl.*—Throughout the whole extent of this great deposit, and not only within the bounds of South-Carolina, but also in the adjacent parts of North-Carolina and Georgia, where I have seen parts of its extension, there is a remarkable uniformity of texture, color, general appearance and qualities manifest to the senses, and also of chemical composition. In these respects, throughout the vast surface and depth of this bed, there is less variation of appearance and quality than is always found in the different exposures of Virginia in the same neighborhood, and even in the same excavation. Still there are minor and well marked differences, belonging to different localities, and also to different depths in this formation, which will be stated as each shall come under consideration.

In general, and with but few exceptions, this marl, as seen in the bed, is of a dingy, yellowish white color, or pale buff, of different shades. The exceptions, showing the greatest departure from this general character, in some cases are parts almost white, and others of brown, colored by ferruginous matter. Sometimes a dull greenish tint is added to the ordinary shades. The texture is close and firm, and the fracture something like that of chalk; though the mass is generally softer, and in some few cases more indurated, or approaching to stony, than of true chalk. The fossil remains are very few, except in some particular localities; and even there not of many species, and mostly very imperfectly preserved. Indeed, except a few of the oyster family, and others as remarkable for hardness, the shells have been almost entirely dissolved or disintegrated, leaving however in some cases their forms in perfect casts of the firm marl, which had filled their hollows, as well as enveloped them closely around. But so few are the fossils altogether, compared to the great extent of marl already exposed, and which was wholly formed by shells originally, that it is not surprising that many persons to whom such localities had been longest known, had not observed the existence of any such remains, and that but few others, either from that or any other indication, had ever suspected the earth to be calcareous. The general appearance to the eye, or to ordinary loose observation, is that of a poor clay, very largely mixed with silicious sand; though in fact there is usually but a very small proportion of sand.

Whether the marl is hard or soft, it breaks into lumps or crumbles more or less as it is dug. However moist in its bed, it is not plastic like fine clay, or yielding in the manner of moist clay to the blows of the digging utensils, but rather as firm sandy earth, and the hardest marl as very soft sand-stone, or very compact and dry clay.

The proportion of pure carbonate of lime in this marl, for much the larger number of exposures, yet seen, and of many analysis made, (which will be stated particularly hereafter,) varies from

fifty-five to eighty-five per cent.; and more of others rise above ninety than fall below fifty per cent. This is a degree of richness, compared to the marls of other regions, as remarkable as is the great extent of this bed. The ingredients of the marl, other than the carbonate of lime, are mostly fine clay and silicious sand, colored by oxide of iron. No magnesia has been found. In many specimens there is a very small proportion of green-sand, which alone may be considered as of any notable fertilizing value in addition to the main and important ingredient, carbonate of lime.\*

In some particular localities I have found green-sand forming so large an ingredient of this marl, that it must add a very important value to the marl as manure. And it is most probable that deeper excavations will show still richer and more abundant exposures of green-sand mixed with the calcareous marl, than I have yet been able to find. While I hold the green sand to be of inferior importance by far to the calcareous ingredient, still it is certainly, as an addition thereto, of very great agricultural value, however little is understood of the cause and manner of its remarkable and yet uncertain fertilizing action.

The dip, or degradation, of the surface of the great calcareous bed, or its angle with the horizon, is generally from north to south, and does not differ greatly from the general slope of the country, and the consequent courses of the rivers; but is greater than either. This greater general dip of the surface of the marl (or irregularity of surface) is much more marked on the Santee than on the Cooper, and on the Cooper than on the Ashley and those rivers still farther south and west, passing through this region. And the entire body lies deeper below the surface of the rivers as we proceed south-westward, in any line parallel with the sea-coast, with some exceptions from this general rule (on and near the Savannah,) which will hereafter be stated. Nor is it certain that this declination or irregularity of the surface indicates the true *dip* of the stratum; as it may have been produced by denudation, or the washing away of the original surface of the marl, subsequently to its deposition. There are no distinct marks of stratification to be seen but in few places, and for small extent. And when such marks are seen, they are either so perfectly horizontal, (to the eye,) or are so obviously and irregularly contorted by some,

\* The marl of the Great Carolinian bed is not more remarkable for uniformity of character throughout its great extent, than for difference from all the marls of Virginia, numerous and widely differing as are the varieties of the latter. It is enough to say here that the marls of Virginia are generally much poorer than those of the body described above, the bed is comparatively very thin and limited in extent, and composed for the greatest part of shells and their fragments of more recent formation, (middle tertiary) in good preservation, imbedded in a looser and softer earth, principally and generally of sand. The many varieties of marls known in Virginia were described at length in a Report to the Board of Agriculture of that State, giving a full "description and account of the different kinds of marls, and of the gypseous earth, of the tide water region of Virginia," which forms part of the "Essay on Calcareous Manures," commencing at page 194.

violent and partially operating ancient convulsion, or upheaving of the bed, that no correct knowledge of the true dip could be learned from the lines of stratification yet observed.

*Marl of Ashley and Cooper Rivers and their Branches.*—In ascending Ashley river for the purpose of tracing the marl, it was first seen exposed above low-tide on the land of Mr. John S. Brisbane, about 9 miles above Charleston. The land bordering on the Ashley, for much the greater part, is tide marsh, formed by comparatively recent river alluvion, and which, therefore, cannot contain and show anything of the much more ancient calcareous deposit. But at every bluff, or wherever the high land reaches to, and has been partly washed away by the river so as to present a precipitous cliff, there the marl is exposed to view. Thus it was traced and examined along the whole course of the river to Bacon's Bridge, the head of sloop navigation, a distance of 20 miles. The height of the perpendicular exposures of marl on this river, above the lowest point, vary from 4 to 8 feet above high tide; and when excavations shall have been made, no doubt the elevation of the surface of the marl, a little back from the river, will be found much higher than as first seen.

Though the natural exposures of the marl above water were few compared to the spaces where it was not visible, still it required but little investigation to infer with certainty that the body of marl is continuous, and of very regular grade of surface. Hence, it was manifest that the bed could generally be reached at moderate depths on any of the neighboring lands, as none are of much elevation; and, as certainly at greater depths under the river and its upper creeks and tributaries. The entire beds of Dorchester and Eagle creeks are of marl, which is left mostly bare at low tide. And the bed of the river generally, where clear of the alluvial mud, whenever I could reach and examine it, is so firm that it is manifestly the bed of marl. By using a steel gouge fixed to the end of a very long measuring rod, I was enabled to bring up specimens of the bottom for examination, of which the lowest was 26 feet beneath the water at low tide; and showing positively at least so much depth of the marl stratum. But subsequent developments showed a thickness so very far exceeding this that it was no longer necessary to attempt such partial and imperfect measurements for that object.

The law of continuity and level of the marl, which my earliest observations thus enabled me to ascertain, however obvious it may now seem, was very recently not suspected by the proprietors most interested in its practical application. And by inducing their attention to these general indications of the position of the bed, where it was not visible, I enabled many persons to find it at once, and easily, by boring or digging through but a few feet of overlying earth. And if the indications are thus pursued generally, and with but little effort by each individual, the accessible and



available exposures of marl will be increased very far beyond all that is now suspected of their abundance.

Immediately on the margin of Cooper river, the lowest exposure of the marl above low tide is believed to be at Strawberry Ferry. Above that place, it is exposed at every bluff; and within two miles above, at Mepkin, the marl shows 8 or 10 feet above high tide. At Steep Bluff, near the head of Cooper, is the highest and most remarkable exposure on this river. The perpendicular height here, above high tide mark, I found by measurement to be 26 feet, or 31 above lowest tide. Except one horizontal layer of about 18 inches thick, (of marl stone,) all this cliff is of compact homogeneous marl, not so hard as to be very difficult to be dug. But this height is not preserved above. And even the lower elevations of Mepkin Bluff on Cooper, and at Magnolia on Ashley, are also but slighter exceptions to the general degree of dip, or law of position of the surface of the bed of marl; which law seems yet more uniformly preserved throughout the area occupied by the waters of Ashley and Cooper rivers, than elsewhere.

The natural exposures of the marl on the Cooper are not confined to its borders, or to cliffs on the river and its large tributaries. It is also seen in various places in bordering lands, and along the public roads which pass on both sides of the river. The great Biggin Swamp, the source of Cooper river, which with all its branches consists of several thousands of acres, seems to be throughout underlaid by the bed of marl, and of which the surface is generally within 3 to 5 feet of the surface of the swamp land. This important fact, (as of many other swamps,) might be very safely inferred from the above stated law of position of the bed. But it is also sustained by more direct evidence. The lower level of the Santee canal, for three miles, passes through a higher part of this swamp land; and every part of it was dug into the marl, as appears from its remains still lying on and by the bank. It also appears at the different excavations for locks on higher levels, to Wantoot, seven miles up the canal. Further, I have made borings, and induced other persons to make them in sundry places in head branches of the swamp, and the marl has been always found as above stated. The most northern and remote exposure known of marl on any swamp leading into the Cooper, is in Devaux's old mill pond, about 2 or 3 miles east of the Santee canal, and 5 miles due south from Pineville. And nearly as far north, about 6 miles west of the canal, in other head swamps of Cooper, the marl has been recently reached on the lands of Mr. Philip Porcher, and of others in the same neighborhood. This swamp, (according to the district map,) connects with Greenland swamp, which empties into the Santee, and which swamp also has marl under it; and Devaux's old mill-pond is barely separated from another swamp, (Buckhall,) which is also connected with the Santee, but much lower down. Under the extensive Wassamasaw swamp, the marl

is so near the surface, that it is exposed and brought up by the fall of trees uprooted by the winds.\* And though the great Cypress swamp, which lies between and connects Wassamasaw with the head of Ashley, where my personal examinations stopped, has not been yet explored for this purpose, there can scarcely be a question that, like all the explored upper swamps of Ashley and Cooper, it is bottomed by marl, and that lying near the surface. Thus, these lines of exposure offered by nature in the numerous and extensive swamps, and also of marl easily accessible for use, will serve to exhibit the actual connexion of the marl of the Ashley and Cooper and the Santee. And also, if this mode of examination were pursued, it is likely that the calcareous bed would be in like manner found not only to be connected, but also accessible from the Ashley to the Stono river, and perhaps to the Edisto. But however easy it is for such examinations to be made by the numerous proprietors, each one operating on his own ground, it will be obvious on the slightest consideration of the circumstances, that my time and opportunity for such examinations could not extend far. Each proprietor, having full knowledge of the general localities and particular features, could bore into and find the level of the marl under his inland swamp with the labor of a few hours. And if the general facts of the presence of the marl be such as I infer, the discovery will have a most important bearing, not only on the enriching by use of the marl of adjacent lands, but also on schemes of extensive and perfect drainage of swamps, and even of greatly extending inland navigation, by the same general plan of operations. If the Santee canal, instead of rising at once, as it does, to a higher level, had been carried from the Cooper river through the lowest part of the swamps, and without a lock, as far as the level and height of water would have permitted for good sluice navigation, there might have been obtained, in addition to the navigation, the perfect drainage of more than as many thousands of acres of rich swamp, as there are now kept overflowed of swamp and highland, as reservoirs to supply scantily with water the summit level of the canal. And the marl obtained by the excavation, if applied as manure, would have produced value as great as the cost of the digging. Subjects for the like mode of combining the three great improvements of marling, draining, and inland navigation, (and to which perhaps may be added, in a very important degree, lessening the diseases from malaria,) are offered in the head swamps of Ashley river, and perhaps in many other such swamps, which are now but the producers of pestilence, and are among the greatest, and almost only grievous natural evils which oppress lower South-Carolina. It seems to me not unlikely that the very existence of the numerous swamps of this region,

\* For this fact, and for a specimen of the marl, I am indebted to Mr. H. W. Ravenel, as well as for making at my request some other accurate examinations, to which I could not attend personally.

and of their great extent, may be owing to the stratum of marl lying generally beneath, and not far below the surface of the land. For this earth so strongly resists the washing by water, that both continued action and great force of current would be necessary to scoop out channels of sufficient depth and width for the passage of the rivers. Where the bottom is of marl, even though there be abundant fall for drainage, it is difficult to conceive how the rivers should be otherwise than they are—the larger bordered by numerous swamps, and the smaller rivers and streams being scarcely anything else than swamps. Yet their courses are so rapid as to show very considerable fall. If the underlying strata had been altogether of sand and clay, without marl, (or with but a thin and comparatively poor stratum of marl, lying high, and easy to be cut through by currents, as in Virginia,) then the rivers of South-Carolina, as those of Virginia, would have scooped out their channels so deep as to bring the tide up to the falls, and thus offered sufficient fall and outlet to drain all the swampy margins, below as well as above the falls.

(To be continued.)

For the Southern Agriculturist.

#### A CAUTION TO PLANTERS RESPECTING MARLS.

Dr. HOLBROOK has handed me a specimen of supposed marl, from the plantation of Miss PINCKNEY, at Pinckney Island, near Hilton Head, with the request that I should report its composition, as already a large quantity of the material had been dug with a view to its application to ordinary tillage soils.

I find its ingredients to be as follows :

Silica,	-	-	-	-	-	82.600
Carbonate of lime,	-	-	-	-	-	5.056
Per oxide of iron,	-	-	-	-	-	4.800
Alumina,	-	-	-	-	-	2.200
Water,	-	-	-	-	-	4.600
Carbonate of magnesia in traces.						

						99.256
Loss,	-	-	-	-	-	744

100.000

If these materials were equally diffused and properly comminated, it is not denied that they would constitute a very tolerable

mineral basis for a soil ; but it is too obvious that in no case would the agriculturist be compensated for the cost of raising from below the surface, and spreading over his cultivated fields so lean a mineral manure as this, even if it were capable of (as it does not promise to be,) a rapid disintegration from exposure to the air, and the ordinary operations of husbandry.

CHAS. UPHAM SHEPARD.

*Charleston, March 12th, 1844.*

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BENEFITS OF SALT AS MANURE.

We have recently been perusing several European articles, detailing experiments made with salt as a manure, and from them we have made the following brief synopsis of its utility.

It attracts the humid vapors and repels frost, and thus assists in keeping the land moist in dry weather, and warm in cold. It keeps every thing in the soil in a soft and soluble state, and assists to digest and prepare the food for vegetable nutrition. It destroys many kinds of vermin and weeds, and usually increases the amount of the crop from one fourth to one third ; strengthens the growth of everything to which it is applied, and brings all crops earlier to harvest. It generally adds from 5 to 7 bushels per acre to the yield of wheat used in the most moderate quantity, and in all kinds of grain makes more ear and less straw. Mr. George Sinclair obtained at Woburn, on plots of 36 square feet, at the rate of 70 to 95 bushels of wheat per acre, by the use of salt mixed with other manures. It is found equally beneficial to pasture as well as root crops, sweetening all vegetation, and making it more wholesome for man and beast. It is a great safeguard against blast, rust, mildew, and indeed all the diseases of grain and vegetables.

Salt is inoperative applied near the seashore, where salt water or spray is already in excess on the land ; but everywhere else it is beneficial. It may be used at the rate of 5 to 40 bushels per acre, though 10 to 20 bushels is better. It can be sown broadcast on the land, or be incorporated in the manure or compost heap. Mr. Prideaux informs us, that mixed with lime and its compounds it undergoes decomposition, producing soda or its combination with carbonic acid, or with humus ; all more powerful digesters and feeders than the salt itself ; and the muriate of lime, which has the strongest attraction for moisture of almost anything known. Salt and lime work vegetable matters to decay quicker than salt alone. With gypsum it will supply soda and sulphuric acid cheaper than any other material, besides the muriate of lime, so valuable for its moistening quality.



In 1839 we commenced a series of experiments with salt; but soon after, being called to a distant part of the country, and returning to our farm only at long intervals, they were not carried out with that particularity which they ought to have been. Sufficient, however, was known to prove, that applied at the rate of 10 bushels per acre to grass and vegetables, it made them much more sweet and nutritious, and added as near as it could be estimated, about one fifth to the first crop of grass cut for hay, and full one half to the growth of the aftermath, and increased the vegetable crop about one fourth in its yield.

When salt can be obtained cheap we recommend its use. We have seen thousands of gallons of fish and other brine thrown away in our towns and cities, which would be well worth saving and adding to the manure heap.

[*American Agriculturist.*]

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#### SUBSOIL PLOUGHING.

We are highly gratified to observe an increased attention to subsoil ploughing, for we consider if it could be generally introduced among us, it would be found one of the greatest agricultural improvements of the age. In volume I, page 199, we gave full details of the successful operation of the subsoil plough in England, where it was shown, that by its use, crops may be doubled without adding a particle of fertilizing materials to the land. Two years subsequent experience by the farmers of that country, corroborate the benefits to be derived by the free use of the subsoil plough, for grain as well as root crops. Mr. Tilley recently asserted before the Cornwall Agricultural Association, that he had the past year raised hundreds of roots of mangel-wurzel, weighing 25 lbs. each; that the crop of these per acre, as well as carrots and turnips, was at least doubled by subsoil ploughing.

Five years ago we had a piece of land containing  $4\frac{1}{2}$  acres of a hard clay soil, which, with the best management we could bestow upon it, yielded less than 150 bushels of potatoes to the acre, and 400 of sugar-beet—while parsneps, carrots, or any long roots, it would scarcely grow. We had just heard of Mr. Smith's subsoil plough in Scotland, and determined upon an experiment. We had no plough of this description, nor could we then obtain one; we accordingly took the mould-board off from a large, strong road plough, and used the point of the share alone for subsoiling. We ploughed the land in the fall of the year, by taking a common plough and one yoke of cattle, and turning over a surface furrow six inches deep. We then follow directly after this in the same furrow, with three yoke of cattle attached to the road plough, stirring the soil eight inches deeper, making fourteen in all. This we then bountifully limed, and the next spring as bountifully ma-

nured and planted it with roots, and the following autumn obtained over 1,100 bushels of sugar-beet to the acre from it, and other crops in proportion.

Subsoil ploughs may now be had in New-York, of excellent pattern and strongly constructed, from \$10 to \$15 each, which will stir the earth from 12 to 18 inches deep, requiring from two to five yoke of cattle to move them, according to the nature of the soil, and the depth required to plough.

[*American Agriculturist.*]

From Hovey's (Boston,) Magazine of Horticulture.

#### EARLIEST VARIETIES OF PEAS.

*Comparative earliness of six varieties of Early Peas, with a description of their qualities, and remarks on their cultivation, &c.*  
BY THE EDITOR.

Desirous of ascertaining the comparative earliness of several of the most generally cultivated kinds of early peas, whose real merits in this respect, there seems to exist so much uncertainty, we thought it advisable to try an experiment with a view to arrive at some accurate knowledge of their relative earliness; and the last spring, having received from London a small quantity of the new Prince Albert Pea, which was stated to attain to full size in the very short period of *forty-two days* after sowing, we were anxious to try its very early qualities in our climate, and at the same time to test its merits in this respect, when grown with what have been usually considered our earliest kinds.

On the 3d day of May, 1843, the following six varieties of peas were planted, viz :

Prince Albert,	Hill's Extra Early,	Early Washington,
Cedo Nulli,	Early Warwick,	Early Dwarf.

The soil in which they were planted was a light sandy loam, moderately enriched, and the situation open, though somewhat sheltered by surrounding buildings. The rows were about fifteen feet long, and about three feet apart, and two rows of each of the six sorts were planted side by side. The result was as follows :—

*Prince Albert.*—Sown May 3d—in flower June 11th—pods filled for eating June 25. The time from the date of sowing to time of gathering for the table, 53 days.

*Cedo Nulli.*—Sown May 3d—in flower June 14th—pods filled for eating July 1. Time from the date of sowing to time of gathering for the table, 59 days.

*Hill's Extra Early.*—Sown May 3d—in flower June 16th—pods filled for eating July 3. Time from the date of sowing to time of gathering for the table, 61 days.

*Early Warwick.*—Sown May 3d—in flower June 17th—pods filled for eating July 4. Time from the date of sowing to time of gathering for the table, 62 days.

*Early Washington*—Sown May 3d—in flower June 18th—pods filled for eating July 5. Time from the date of sowing to time of gathering for the table, 63 days.

*Early Dwarf*.—Sown May 3d—in flower June 18th—pods filled for eating July 9. Time from the date of sowing to the time of gathering for the table, 67 days.

Difference in favor of the Prince Albert over the latest of the six varieties, *fourteen days*, over the next earliest to the Prince Albert *six days*.

It will be seen by the above list which is placed in the order in which the pods are fit to gather for the table, that the Cedo Nulli comes next to the Prince Albert, the difference being six days, showing that the Cedo Nulli maintains its reputation of being the earliest pea cultivated in our gardens, previous to the introduction of the Prince Albert. Hill's Extra Earley, which has been considered by some market gardeners as the earliest pea, and always, in consequence, commanding a very high price, being *two days* later. The Early Warwick comes next; then the Washington; and last the Early Dwarf, which has always been considered an earlier and dwarfier variety than the Early Washington.

From this statement it will be seen that the Prince Albert did not arrive at a fit state for gathering for the table, in the period stated in the English publications, of *forty-two days*—exceeding that period by eleven days. It must be recollected, however, that our climate is materially different from that of England, especially our springs. With us cold easterly winds and sharp frosts often occur in April and May, which give a great check to vegetation; while in England the mildness and slight variation of temperature at that season, is favorable to a continued and rapid growth of such a vegetable as the pea.

Two other sowings were made of the Prince Albert Pea alone, viz :—

Peas sown April 22d—in flower June 4th—pods filled for eating June 23. Time from date of sowing to time of gathering for the table, 62 days.

Peas sown May 18th—in flower June 23d—pods filled for eating June 30. Time from date of sowing to period of gathering for the table, 43 days.

The latter sowing, when the season was more advanced and the weather warmer, shows that the time for gathering for the table was only *forty-three days*, exceeding *one day* the time stated in which it had been grown by Messrs. Cormack & Son, the originators of the variety.

These several experiments are satisfactory in establishing the fact, that the Prince Albert is the earliest pea yet known; varying in the time of arriving at proper size for gathering for the table, from 62 to 43 days, according to the earliness or lateness of the season when they are planted.

The following are the descriptions of the above six varieties, in the order of their ripening :—

1. *Prince Albert*.—About 2½ feet high, and moderately strong. Pods long, medium size, round and nearly straight, containing 6 or 7 peas. Very early, very prolific and of excellent quality. The first blossoms appear at the fourth joint, and we now have dry vines which have upon each, 7 or 8 pods of peas.

2. *Cedo Nulli*.—*Synonyme* : Sinclair's Early.—About 3 feet high, and strong growth. Pods long, good size, and nearly round, containing 6 or 8 peas. Very early, prolific, and of excellent quality. This is probably an improved variety of the Early Frame, raised by R. Sinclair, Jr. & Co. of Baltimore.

3. *Hill's Extra Early*.—About 3 feet high, and of strong growth. Pods very large size, full, round and long, containing 7 or 8 peas. Early, very prolific, and of excellent quality. This variety obtained its name and reputation from long having been cultivated by Messrs. Hill, of West Cambridge, who have generally brought the first new peas to market, in the vicinity of Boston. The great value to the market gardener of this variety, is the evenness of the ripening of crop, the whole being gathered at about two pickings, when the vines may be cleared off the ground.

4. *Early Warwick*.—About 3 feet high, and of strong growth. Pods good size, full, round and long, containing 7 or 8 peas. Early, very prolific, hardy, and of excellent quality.

5. *Early Washington*.—This variety we think is identical with the Early Frame, and its numerous synonyme ; but as we have not compared them, when growing, with the true Early Frame of the English cultivators, we still continue its present name. About 3½ feet high, and rather slender growth. Pods moderate size, round, containing 6 or 7 peas. Prolific and of excellent quality. See Vol. 11, p. 427, for a list of the synonymes of the Early Frame, which is unnecessary to repeat here.

6. *Early Dwarf*.—*Synonymes* : Earliest Dwarf. Russell's Early. Early Jane. About 4½ feet high, and of strong growth. Pods long, narrow, not very full, containing 6 or 7 peas. A moderately good bearer of good quality and very hardy. This variety seems nearly allied to the Hotspur or Early Charlton, from which it probably originated.

Although our experiments were principally confined to the above six varieties of early peas, yet, for our own information, we also made a sowing of the Blue Imperial and Dwarf Marrowfat, at the same period of the above sorts, with a view to obtain the exact period at which the pods were fit to gather for the table, in comparison with the early kinds ; and as this may be of some interest to our readers, who may be desirous of planting their peas so as to obtain a crop in succession, we add the results of our experiment here, viz :—



*Blue Imperial*.—Sown May 3d—in flower June 26th—pods filled for eating July 18th. Time from date of sowing to period of gathering for the table, 76 days.

*Dwarf Marrowfat*.—Sown May 3d—in flower June 28th—pods filled for eating, July 20th. Time from date of sowing to period of gathering for the table, 78 days.

From this it appears that the *Blue Imperial* were of sufficient size to gather for the table, in 23 days after the *Prince Albert*, the earliest pea; and 9 days after the *Early Dwarf*, the latest of the early varieties. The *Dwarf Marrowfat* is only 2 days later than the *Blue Imperial*.

From this table any cultivator may make such sowings as will give a succession of peas through the season.

The cultivation of the pea is so very general and simple, that it may be thought superfluous to add anything on this head. Yet the familiarity of the subject is no reason why we should omit it. Peas, it is true will grow and bear under almost any management; but they will produce better crops with some cultivators than with others.

Sowings of peas may be made as soon as the frost is out of the ground, in warm and sheltered situations; as early as the latter part of February or March in some localities. In West Cambridge, on the sunny slopes and light soil at the base of the hills, sheltered from all cold winds, peas are often planted in February, and brought to market from the 4th to the 10th of June. Oftentimes they are checked with severe frost for several days, but being so very hardy and at the same time protected by some light covering, they soon recover, and come on rapidly in May. In gardens, however, not much sheltered, and with heavy soils, not much is gained by sowing before the first of April.

The soil is moderately rich, need not be manured; but if sandy, it should by all means have a quantity of old compost spread in the row, which should be made with a hoe, and after the manure is strewn in, covered over with two inches of soil. On this draw two drills about 6 inches apart, and scatter in the peas at the distance of three or four inches apart, and cover them an inch deep, giving the soil a gentle tap with the back of the hoe as the peas are covered in. The rows may be three or more feet apart. Some cultivators recommended eight or ten feet, and cropping between with other vegetables; this mode often prevents mildew. When the peas are up and advanced about two inches they should be slightly hoed; and when grown to the height of six inches they will need another stirring of the soil, at the same time slightly raising up the earth against the base of the vines. After this nothing more need to be done, unless it is thought desirable to stick them with brush, or put up lines of twine running lengthwise of the rows, and fastened each end to a strong stake. In gardens where neatness is

an object, the latter mode obviates the straggling appearance which the vines have when lying in all directions upon the ground.

The pea does not force well, but there are various ways of forwarding a crop; the modes which we have found best are sowing in small pots, or upon pieces of turf turned bottom upwards, placing the same in a frame or exhausted hot bed, and transplanting, as soon as the weather is mild, under a sheltered fence or building, protecting them with straw, leaves, or litter on cool nights. In this way peas may be accelerated a fortnight or more. Where there are grape houses, with or without flues, peas may be brought forward, and a small crop obtained, some time before they are to be had in open air.

We cannot omit to urge the cultivation of Knight's tall marrow pea. It is of delicious quality, and produces throughout the whole season. A sowing made at the same time of the Dwarf Marrow-fat, will produce pods for gathering for the table in about two weeks after that variety. Strong brush or lines, as before mentioned, should be put up to support the vines.

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#### THE CURCULIO.

I have read nearly all the articles upon this subject, which have appeared in your magazine, and other horticultural periodicals, but have found no remedy, as yet, upon which I can place much reliance. The most satisfactory communication, is that of Dr. Burnett to the Massachusetts Horticultural Society, which agrees with my own observation and experience, and that of others in this vicinity. I believe the only way of preventing a destruction of the entire crop of fruit, is that of spreading a large sheet under the plum tree, early in the morning, or in the evening, when the insect is less active than through the day, and then giving it a sudden jar or shake, which will cause them to drop upon the sheet, and enable the operator to destroy them. This, however, requires considerable perseverance, and must be continued daily, from the time the curculio first makes its appearance in June, until its disappearance in July; and it is questionable whether the plums preserved at the end of this season of watchfulness, will compensate for the time and labor bestowed upon them. I therefore believe we are still without a remedy, and anxiously look forward to the discovery of some easier, and more successful mode of preventing the destruction, from year to year, of this valuable fruit.

My anxiety on this subject has greatly increased since I have become acquainted with a fact observed by others, of which I had ocular demonstration during the last summer, that even the peach is not exempt from the ravages of the same insect,—the fruit of several trees upon my own ground having been rendered worthless by it, if not entirely destroyed.

My object more particularly in addressing you, is to mention one or two facts which came under my own observation, and may, perhaps, be of value to those who are in pursuit of the desired remedy. I think they will clearly prove that, if every curculio upon the tree be destroyed, and all the punctured fruit thrown into the fire, *it will not prevent the same number of the insect from appearing the succeeding year.*

The place which I now occupy contains twenty acres, situated within two miles of the city. Two-thirds of it was covered with a dense forest, and the remainder in meadow, and was about the centre of a farm of one hundred and sixty acres, when I purchased it, six years ago. There was, at the time, no plum or peach tree within half a mile of it. Having planted a number of fruit trees near the house, some of the plum, which were of a large size, blossomed, and were covered with fruit in great abundance, for the first time, in the summer of 1842. As they increased in size, I soon discovered that the curculio were busy at work, and in a short time there was not a single one untouched. Consequently, they all dropped from the tree, but were immediately gathered up, and given to the pigs. Last year the trees having increased in size, and the season being more favorable, a larger crop appeared, which was again attacked by the insect in far greater numbers than the previous year. Although it appeared an almost hopeless undertaking to prevent their ravages, I, however, commenced shaking the trees with a sheet spread under, as above mentioned, although too late to preserve any fruit.

The year after, coming upon the place, I had three acres of the woodland thoroughly cleared, not leaving a single stump or bush remaining. This was some distance from the house, and about the middle of fifty acres of dense forest, extending beyond my boundary line. One half of it I laid out as a kitchen garden, and planted in it some peach, plum, nectarine, and other trees. A nectarine tree having attained considerable size, bore a full crop of fruit for the first time last summer; but when they had increased to the size of a large filbert, they were assailed by the curculio in such numbers, that they were three or four punctures in each fruit. They next appeared upon the peaches, the greater part of which shared a similar fate.

Now, the query is, where did they come from, in either of the two cases mentioned, and how, in the last, find access through the bordering wood, unless, as mentioned by Dr. Burnett, they fly a great distance? This I believe to be the fact, although at variance with the opinion of some writers on this subject; or if they originated in the garden, is not the fact fully established, that the insect finds other receptacles for its eggs than the fruit upon which they usually appear? Then an important question arises, what are these receptacles?

Since these facts conclusively show, that they are not confined within a certain compass immediately around the tree but may range over any extent of country, and as we are not certain that they propagate exclusively upon the fruits in question, is it not fallacious to attempt their extirpation by destroying them in the grub or pupa state, by any of the means heretofore recommended, —such as saturating the ground some distance about the tree with salt ley, burning the punctured fruit to destroy the egg, and similar experiments.

Unless the plan of shaking the curculio from the tree, can be made to answer the purpose more fully, or some means devised to prevent it from coming upon the fruit, I confess that I am at a loss for a remedy, as I believe are also all your correspondents.

Yours truly, &c.

B. A. FAHNESTOCK.

*Pittsburg, Pa. February, 1844.*

[*Magazine of Horticulture.*

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TOPPING COTTON, &c.

The annexed article, from our brother editor, we find in the *American Agriculturist*, and forthwith copy it :

The December Number of your ever-welcome paper came to hand this day, and among its useful articles, my attention is drawn to that from C. McD., of South-Carolina. I must first thank him for the kind manner in which he has alluded to my articles on the culture of cotton, as published in your work, and acknowledge to all whom it may concern, that I do indeed feel happy in having done some good ; of having somewhat returned benefits for the very many I have received from farmers and farming papers. The amount of knowledge I have gained by personal experience is too limited to benefit any one ; I am therefore indebted to books, papers and men, for all I am able to retain second hand. Mr. McD. refers to the topping of cotton, and says he does not recollect that I touched on the subject. I did not ; not that I thought its advantage at all questionable, but partly oversight, and partly because it was so seldom resorted to, that I feared to be considered as recommending anything questionable, thereby injuring the utility I hoped to accomplish in the articles written for your paper.

In the summer of 1832, I think, Mr. John Thomas, of South-Carolina, visited me, and, among other practical lessons, he urged on me the utility of topping cotton—declaring that it would well repay for the time, whether it were cotton that would yield only 560 lbs. of seed cotton, or of that which yielded 2,000 lbs. To make his declaration as strong to others as to myself, I here state, that this gentleman at the date mentioned had some 200 hands, was a cotton-grower, and had cultivated it for some 20 or 30 years ; on



the rich lands of the Congaree, as well as higher up the country on Broad river; he was an intelligent man, and truly a warm-hearted southerner—he is now no more.

In consequence of his urging me to try it on a small scale, as this country was new to both of us, I did so, and have had cause to follow it up ever since—sometimes neglecting at the proper time, from pressing occupations, or the season. I kept no memorandum of the difference, though I commenced farming, by keeping notes; but I am confident if followed up, that it will be beneficial two out of three years; and on most lands, will not injure the third year. I give my reason why it may not benefit every year. If the season is wet after the time of topping, say from the 25th of July to the 5th or 10th of August, there will shoot up water sprouts, which will shade the under bowls so as to prevent them opening well; it will make a heavy top crop of bowls, which will cause the stalk to bend down, and if any wind comes with the rain, the stalk cannot regain its upright position. If the season has been very dry, the cotton will pretty much cease growing by the time of topping, and will not then be advantageous, unless done earlier—which, if I ever have another chance, I will try.

Topping is advantageous for the following reasons: the forms or squares, and small bowls, will not be cast off so readily, the upper bowls will mature sooner, make less leaf to be falling on the cotton, and the top bowls, principally, will be larger than otherwise. Last year I topped cotton on the first day of August—this year I did not top at all, owing to the wet season. I would not top cotton during a wet year, till I had more knowledge on the subject, for fear of the water shoots, but would not hesitate if a dry one.

*Benefit of Manure for Cotton.*—I have not seen marl used, but I can satisfy any one who doubts the effect of manures for cotton, and of cotton-seed especially—that no man ought ever to think of leaving a level farm, the house and friends of his childhood to seek rich lands. This year has been more favorable for thin lands, than usual; but whether for stiff clays is rather doubtful; and whether my manured land did better on this account, I know not—but here is the result. My orchard lot contains 24 acres, in which are half an acre in grass, quarter in a flower garden, and near three-quarters in roads and gin-house; I therefore say there are 23 acres in cotton, 9 of which were manured with cotton-seed, and about one with barnyard manure. From the 23 acres I have gathered an average of 1,138 lbs. per acre. The poorest land on the place, and the poorest portion was manured; a part of the unmanured, say 4 or 5 acres, could not have averaged over 700 lbs. per acre. This field has been in continued cultivation since 1828; has on it some 270 peach-trees, 3 years old; 50 small pear, apple, and cherry, with some 30 large peach-trees; besides, two rows of

*morus multicaulus*, forming an avenue to the house. If the trees were deducted, there would not be over 21 acres, which would give me 1,150 lbs. on an average; with enough more, if gathered, to make 1,300 lbs. Another field that is high and dry, gently undulating, cleared in 1833 or 1834, and is much richer land, will not give me that average, and was at no period of its growth as good, as was the manured portion.

*Pleasures and Advantages of Remaining at Home.*—Let any man “cypher” up the cost of moving—the cost of land—the cost of building—the cost of clearing—to say nothing of the deprivations in a country where farms are to open—the loss of dear associates—our school-mates—and the time required to prepare for making money, and I venture on it, no sane man will move. I want to see many from those old countries here: not that, Indian-like, I wish them to suffer because I have, but that I want a thicker settled country, and more demand for land. Yet with all this I would recommend them to improve at home where they now are; husband their resources; study the economy of manures, improved agricultural implements, stock, seeds, the best rotation, and management of crops.

Would that man merit aught but opprobrium, who would urge his fellows to sever every tender tie that binds him to “home, sweet home;” to even the “old oaken bucket;” to the soil; to his associates and relatives, for the purpose of getting richer land, which, when cleared, and cultivated as is now done, will cause the young flock to wander again—and in reality, only serve to support one generation? I say nay, and therefore urge it on our brother farmer C. McD., as on all others in that good old state, to make it a part of their regular business to save, gather and make manure; they will find that three years of labor, with the cost and loss of moving, will give them such lands, that they will cling to the “old south State,” even if they live in the “Peedee country—God bless you.”

*Leibig's Letters.*—I have just finished reading Leibig's Familiar Letters, and a capital fine thing it is. I wish it had been published prior to his other works, as I think it would have been more generally beneficial; whereas, many who purchased the first works of his, have not read them through, and will suppose this to be a similar work. But the form of letters make it indeed “familiar,” and it treats on “familiar” subjects.

M. W. PHILIPS.

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#### THE TURKEY TOBACCO.

Mr. Lewis Shirley, of Jefferson County, Kentucky, has furnished the Louisville Journal with the following account of his manner of cultivating the Turkey Tobacco:

"The seed should be sown in a hot bed in preference to the common mode of burning and sowing in the new ground. The bed should not be made too hot, and the seed should be sown by the first, or at farthest by the middle of March. The plants should be transplanted in cloudy weather, with a prospect for rain, or when the ground is wet.

The land best adapted to this kind of tobacco is a dry sandy soil, recently cleared. Wet land will not answer for this kind of tobacco. In the preparation of the land, trash of every kind should be cleaned off, the small roots should be removed, and the ground broken deep. The hills should be made much nearer each other, the east and west way, than is common for planting our common tobacco, but the north and south rows should be about the common distance, from two and a half to three feet. The hills should not be made high, as it will be difficult, when the plant is about two feet high, to prime off some of the bottom leaves, and to add to the hill a sufficiency of dirt to keep the plant from blowing down in stormy weather, as it grows very tall. I had some seed stalks, last season, from seven to eight feet high.

None of the plants should be topped until the bloom begins to make its appearance, the top leaves are as good as those at the centre of the stalk, according to their size. The stalks should not be cut until the tobacco is entirely ripe.

In raising the seed from this tobacco, the last blooms should be cut off, and not be suffered to ripen with the forward blossoms; if this is not attended to, the seed will be degenerated. The branches that are not near the stop of the stalk should be cut off while in bloom, as this will assist in making the seed pure through several successive crops.

This tobacco should be cured in the usual way, but must not be too much exposed to the sun after it is out. I believe it can be cultivated, with proper management, for profits as well as for a luxury. For smoking I have seen none preferable to it, and owing to the great number of leaves on the plant, and the greater number of plants, above the common kind, that can be cultivated on certain portions of land, it would, even at the same prices as our native tobacco, bring more money for the cultivation of the same amount of land. If well managed, it should bring double as much, and thus supercede the necessity of using the foreign, particularly if kept to the same age as the Cuba and other fine tobacco.

In addition to what I have said, another matter is worthy of particular attention. After the tobacco is well chored and stripped, it should be carefully bulked down, and weighed down until it goes through a thorough sweating."

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From the American Farmer.

AGRICULTURAL PRODUCE OF ALABAMA.

Land Office, St. Stephen's, Ala., Jan. 9th, 1844.

Dear Sir,—Some days ago I shipped you two boxes, to be forwarded by James Sands & Co. of Mobile, free of any charge, it being paid by me, containing 3 stalks of corn as they came out of the field, showing the growth of that plant with us. These stalks stood  $4\frac{1}{2}$  feet apart, 3 and 4 in the hill, on new land. In the same box, two parts of two stalks from old land, with the ears that came off them, about a foot shorter; the stalks planted in the same way. These stalks were taken out of the ground too early, consequently they have shrunk remarkably; and please to recollect, that owing to an unrivalled bad year for the planting interest and production, no plant or grain in the country is more than *two-thirds* its usual size, so that you see the production of the *worst* year. Also a specimen of *Rice*, which we raise here on any and every kind of land—and situation. We deem it far superior for table use to the South-Carolina. This you can determine. It has more of the *glutinous* and less of the *watery* principle, and every way *richer* we think—produces luxuriantly—grows  $5\frac{1}{2}$  feet in height—straw, if rightly cured, superior forage, especially for sheep and cattle; when put through the cutting box, nothing can be eat with more gratification by all animals—raised with singularly little labor—one ploughing and two hoeings. Corn following it, becomes an insurance for a good crop. After cutting the oats it throws out a fine growth of pasture for cows and sheep unrivalled—50 to 100 bushels shell rice to the acre. By putting the stalks of corn together you can see *actually* the growth of corn in this country and climate, making the before mentioned allowance. The rice on being prepared will speak for itself. In the small box you have specimens of two varieties of the sweet potato lately introduced here. The white yam—the *inside* of which is deemed a great *luxury* after being boiled and a little *steamed*, until a *fork* will readily pass through them—made into a pudding with *rice*, &c., they are much esteemed—the *centre white part* only used. Also the red species, vulgarly called *negro killer*, one of the most valuable roots that ever has been introduced into this country, produces astonishingly from cuttings, slips and vines; the last planted as late as August produced the small size, the large planted early. When planted early they are at maturity by July, when we *grabble* and feed with them, the roots producing on till October, lay well in the ground, and bear *frost*; a singularly fattening quality—when first dug more resemble in taste the *Irish*, but grow by housing, *sweeter*—always dry and mealy—grows in the *shade* of trees. I plant *Irish* potatoes in February, dig when at maturity, and plant the ground in *negro killers*, and make the largest size. To make the heaviest rice for table use, I drill a piece of well prepared land in



rice at  $4\frac{1}{2}$  feet on first March—plough with the Scotsa deep on *full moon*, and drill in the centre of the rows, *corn*, thinning out to 18 inches from stalk to stalk—stick cuttings of the negro killer, two between each stalk, or slips, or vines. As soon as the corn will admit, cut it at the ground, and carry out of the field, *cultivating the ground well* with the *hoe* and *plough*. The *rice* has now great room, and so has the *potatoes*. We cut the corn in August *early*. The potato vines keep the ground *moist and cool*—essential to the *rice*—and they both make *heavy* crops.

I also have sent a specimen of Wine, made in October last from the wild grape, (two of them) growing profusely in our woods among trees and bushes. What would they do if cultivated and exposed to the *sun*? I am trying that point. I have hundreds in *cultivation*. I have requested Mr. Sands & Co. to ship these boxes at my expense entirely.

With sincere regard, I am, dear sir,

Yours respectfully,

JAMES MAGOFFIN.

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#### MULTICOLE RYE.

Imported from France and said to be different from common Rye; sow in June; its growth very rapid. The straw is from 8 to 10 feet high, and the ear 10 to 11 inches long. It can be pastured during summer, autumn and winter, and then a good crop taken the coming year. It is believed to be the midsummer rye of Poland. The weight is 68 pounds to the bushel; it is said to yield a good crop for dry fodder in the spring, without hurting the crop of rye. The kernel is small. It grows on common soil, suited to the old fashioned rye, but its habits are totally different. By the report of above thirty respectable agriculturists near L'Orient, who have cultivated it for the last two years, it does best when sown the first of June. Its growth is most rapid. Two crops of it are, before July, cut for hay; and, by the 15th of August, a grain crop is reaped. The straw is from eight to ten feet high, and the ear from 10 to 18 inches long. An account of this may be found in the Transactions, published by the French Minister of Agriculture, &c. Would not this variety of spring rye be worthy of trial in those parts of the country where other grsres are difficult of growth, on soils rather sandy and light, but which, if in good condition, are the best for this grain? The growth, if correctly stated is truly surprising.

*Farmers' Magazine.*

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#### HORSES.

C. W. Gooch, of Virginia, writing to the editor of the Southern Planter, says: "The ordinary means of purging a sick horse are so slow in operating, that, in many cases, they do no good. I send

you a very simple recipe, with which some of your readers may not be acquainted, which I have never known to fail, and regard as the best and simplest. I saw it many years ago in the *American Farmer*, and have tested it:

"Take a piece of chalk about the size of a walnut, pound it in a mortar, or wrap a rag around it and reduce it to powder with a hammer or any thing else; put the powder into a quart bottle; pour common vinegar into the bottle until the effervescence prevents your pouring in more, and (having the horse ready) drench him with it. But little vinegar can be got into the bottle the first time, so that you will have to pour more into it and drench a second time. Ordinarily a pint will do. If it does not operate in five or ten minutes, persevere in the dose, and in a very short time the animal will be well again."

#### SOAKING CORN IN MURIATE OF AMMONIA.

Dr. Samuel Webber gives an account in the *N. E. Farmer*, of several experiments which he made last season with muriate of ammonia. He dissolved a small piece of the common sal ammoniac of the druggists, estimated at 4 or 5 grains, in about half a coffee-cup of water, and threw into the solution a handful of corn, which, after having remained 4 or 5 hours, was planted. He planted this soaked corn in hills, side by side with that which was not soaked. He made four different experiments, which are reported in considerable detail. In all cases, the soaked seed produced considerably the best yield—generally at least one-third more. The land was light and dry, and for several of the experiments he purposely took the poorer spots. The corn suffered with drouth; but in all cases, that from the soaked seed manifested a decided superiority; so much indeed, that it was noticed by strangers, who knew of no difference in the seed. [Cultivator.]

#### PREMIUMS.

The Plymouth Co. (Mass.) Agricultural Society, offers premiums for the best conducted experiments on different subjects. For instance, such as will determine the relative value of the various substances used as manure—as lime, salt, &c. Particular directions are given, which the claimant for a premium must strictly observe. For the experiment with salt, it is directed to take one-fourth of an acre of dry land. Prepare two compost heaps—an equal quantity of manure in each—in one heap mix one bushel of salt, and in the other, the same kind of manure and no salt. Put one heap on one-half the lot, the other heap on the other half. Plant one-half of *each part* to corn, the other half of *each part* to

potatoes. The next year sow grain and grass seed, and on the part on which salt was used the year before, sow half a bushel of salt, and sow the same quantity of salt the *third* year in the spring. Keep the crops separate, and weigh and keep an exact account of the product of each part.

[*Cultivator.*]

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#### OATS FOR COLTS.

In reading over the "Report of the Committee on the Horse," made to the "Newberry Agricultural Society," South-Carolina, from the S. C. Temperance Advocate, we notice the following caution—"do not let them (mare or colt) be turned into a lot where there is green oats. It is poisonous to the colt."

We had the misfortune this fall to loose the finest colt we ever had, and until this time could have no idea what caused his death. He was about two months old when he died, and was in as fine health and as playful as any colt at mid-day, when we turned an older colt with him into a lot to exercise—that night he died.—Could it be possible the oats killed him? We saw him eating the oats ourself, and hope if it be certain, that this note may guard others, who may be as ignorant as we are. Certain it is, we lost our fine colt, and to make the matter worse, refused some two weeks previously, over \$300 for him—and unless the oats proved injurious, we know of no cause. We ask of those conversant with these matters, for facts; and add, that if this thing of green oats being poisonous to colts be true, we think giving it to our readers, even second-hand as it is, to be worth to each one who knew it not before, double the price of every farming paper in the Union. So, you that are benefited, pay for this, if you have not, and subscribe for another. We are almost led to believe it, and \$100 would have been a cheap price for us to have paid on the 1st of September for this knowledge.

[*S. W. Farmer.*]

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#### BARNYARDS.

We have before us the well written and practical address of Mr. Mather, before the Middletown (Conn.) Agricul. Society, Oct. 1843. The following extract will show the manner in which he manages the important subject of manures.

"Of the methods which I have tried, I consider the following as the most economical. The barn-yard should be excavated in the centre in the form of a dish, leaving a margin on all sides sufficiently broad for the comfort of the stock, and convenience in feeding. In the fall, the yaid may be covered to the depth of ten inches or a foot, with materials from the swamp, the bottom of ditches, or with turf from the road side. To this should be added

all the weeds and refuse of the farm. And I am strongly of the opinion that here is the most profitable place to spread all the lime, ashes, plaster and salt which we design to apply to the land in the coming spring. The liquid from the stables should be led into the middle of the yard, and the manure from the stable, as fast as it is made, be equally spread over the whole, that the quality may be uniform. No water should be permitted to come into the yard, except what falls directly upon it. By the treading of the cattle during the winter and spring, the whole will be incorporated into a uniform mass, and in a suitable condition to apply to the land. By pursuing substantially this course, I have more than doubled the quantity and value of the manure on my farm. A Dutch farmer, it is said, built his barn directly over a small creek, leading into the Hudson, that the stream might carry away all the filth. We are not quite so improvident as the Dutchman, but there are some farmers who, in order to secure a dry yard for the stock, are very particular to leave a *drain* to carry off the wash. *They might as well cut a hole in their pockets.*"

[*New England Farmer.*]

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#### SAGE TEA.

*A Remedy for Botts, or Grubbs in Horses*—Gen. Grier of Georgia, has communicated to the editor of the Southern Cultivator, two cases in which horses so affected have been speedily cured, by giving them a drench of decoction of sage in the usual way.

This remedy is so simple and so easily to be had, that we would advise its use whenever it may be required.

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#### DEATH OF WILLIS GAYLORD.

The Albany Argus announces the death of Willis Gaylord, Esq., formerly one of the editors of the Genesee Farmer, and since the death of Judge Buel, senior editor of the "Cultivator." He died at his residence, Limerick Farm, on the 27th ult. after an illness of only thirty-three hours. He was a most estimable citizen, and one of the ablest agricultural writers in the United States.

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#### SUGAR.

There are 700 sugar plantations in Louisiana, 525 of which are in operation. The amount of sugar produced is 90,000,000 lbs. The quantity of molasses produced in the same state is 4,000,000.